What is claimed is:

1. A method for maintaining the integrity of the gastrointestinal tract luminal lining in a mammal, the method comprising the step of:

providing to the cells of the luminal lining a therapeutically effective concentration of a morphogen, said concentration being sufficient to substantially inhibit lesion formation in the gastrointestinal tract luminal lining.

2. The method of claim 1 where said step of providing a therapeutically effective morphogen concentration to said cells of the gastrointestinal tract luminal lining comprises the step of administering a therapeutically effective concentration of a morphogen to said mammal.

3. The method of claim 1 where said step of providing a therapeutically effective morphogen concentration to said cells of the gastrointestinal tract luminal lining comprises the step of administering to said mammal an agent that stimulates in vivo a therapeutically effective concentration of an endogenous morphogen.

4. The method of claim 1 wherein said mammal is a human and said human is at risk for oral mucositis.

5. The method of claim 1 wherein said mammal is a human and said human is at risk for gastric ulcers, ulcerative colitis, proctitis, regional enteritis, or necrotizing enterocolitis.

6. The method of claim 4 wherein said human is a xerostomatic individual.

7. The method of claim 4 or 5 wherein said morphogen is provided prophylactically.

8. The method of claim 5 wherein said gastric ulcers include peptic ulcers or duodenal ulcers.

9. The method of claim 2 or 3 wherein said step of administering is performed by systemic administration.

10. The method of claim 2 or 3 wherein said step of administering is performed by topical administration.

11. The method of claim 2 or 3 wherein said step of administering is performed by direct administration of the morphogen or morphogen-stimulating agent to said cells of the gastrointestinal tract luminal lining.

12. A method for limiting the proliferation of an epithelial cell population in a mammal, the method comprising the step of providing a therapeutically effective concentration of a morphogen to a proliferating epithelial cell population in a mammal, said concentration being sufficient to inhibit the proliferation of said cells.

13. The method of claim 10 wherein said epithelial cells comprise part of the basal epithelium of the gastrointestinal tract.

14. The method of claim 13 wherein said basal epithelium comprises part of the oral mucosa.

15. The method of claim 12 wherein said epithelial cells comprise hair cells.

16. The method of claim 12 wherein said epithelial cells comprise epidermal skin cells.

17. A method of treating a gastrointestinal tract ulcerative disease in a mammal, the method comprising the step of providing a therapeutically effective concentration of a morphogen to the ulcerated tissue of the gastrointestinal tract, said concentration being sufficient to repair said tissue.

18. The method of claim 17 wherein said ulcerative disease is oral mucositis.

19. The method of claim 17 wherein said ulcerative disease includes gastric ulcers, ulcerative colitis, regional enteritis, proctitis, inflammatory bowel disease, or necrotizing enterocolitis.

20. The method of claim 12 or 17 wherein said step of providing a therapeutically effective morphogen concentration to said cells of the gastrointestinal tract luminal lining comprises the step of administering a therapeutically effective concentration of a morphogen to said mammal.

21. The method of claim 12 or 17 wherein said step of providing a therapeutically effective morphogen concentration to said cells of the gastrointestinal tract luminal lining comprises the step of administering to said mammal an agent that stimulates in vivo a therapeutically effective concentration of an endogenous morphogen.

22. The method of claim 20 wherein said step of administering is by oral, rectal or systemic administration.

23. The method of claim 21 wherein said step of administering is by oral, rectal or systemic administration.

24. The method of claim 20 wherein said therapeutically effective morphogen concentration comprises less than about 100 µg morphogen/kg weight.

25. The method of claim 24 wherein said therapeutically effective morphogen concentration comprises less than about 30 µg morphogen/kg weight.

26. The method of claim 25 wherein said therapeutically effective morphogen concentration comprises less than about 10 µg morphogen/kg weight.

27. A cancer treatment method comprising the steps of:

(a) administering a composition comprising a therapeutic concentration of a morphogen or morphogen stimulating agent to a patient; and

(b) administering a cancer therapeutic agent to said patient.

28. The method of claim 27 wherein said therapeutic concentration is sufficient to substantially inhibit in ulcer format in the oral mucosa.

29. The method of claim 27 wherein said therapeutic concentration is sufficient to substantially inhibit proliferation of an epithelial cell population.

30. The method of claim 28 or 29 wherein said morphogen or morphogen-stimulating agent is administered topically.

31. The method of claim 29 wherein said epithelial cell population comprises cells of the oral mucosa or hair producing cells.

32. The method of claim 27 wherein said cancer therapeutic agent is a cytotoxic agent.

33. The method of claim 32 wherein said cytotoxic agent is a chemotherapeutic agent or a radiotherapeutic agent.

34. The method of claim 33 wherein steps (a) and (b) are performed concurrently.

35. The method of claim 1, 12, 17 or 27 wherein said morphogen comprises an amino acid sequence sharing at least 70% homology with one of the sequences selected from the group consisting of: OP-1, OP-2, CBMP2, BMP3(fx), Vg1(fx), Vgr(fx), DPP(fx), GDF-1(fx) and 60A(fx).

36. The method of claim 35 wherein said morphogen comprises an amino acid sequence sharing a last 80% homology with one of the sequences selected from the group consisting of: OP-1, OP-2, CBMP2, BMP3(fx), BMP5(fx), BMP6(fx), Vg1(fx), Vgr(fx), DPP(fx), GDF-1(fx) and 60A(fx).

37. The method of claim 1, 12, 17 or 27 wherein said morphogen comprises an amino acid sequence having greater than 60% amino acid identity with the sequence defined by residues 43-139 of Seq. ID No. 5 (hOP1).

38. The method of claim 37 wherein said morphogen comprises an amino acid sequence having greater than 65% amino acid identity with the sequence defined by residues 43-139 of Seq. ID No. 5 (hOP1).

39. The method of claim 38 wherein said morphogen comprises an amino acid sequence defined by residues 43-139 of Seq. ID No. 5 (hOP1), including allelic and species variants thereof.

40. The method of claim 1, 12, 17 or 27 wherein said morphogen comprises an amino acid sequence defined by Generic Sequences 1, 2, 3, 4, 5 or 6 (Seq. ID Nos. 1, 2, 3, 4, 30 or 31).

41. The method of claim 1, 12, 17 or 27 wherein said morphogen comprises an amino acid sequence defined by OPX (Seq. ID No. 29).

42. A method for enhancing the efficacy of cancer therapeutic treatment, the method comprising the step of administering a therapeutic concentration of a morphogen or morphogen-stimulating agent to the patient.

43. A therapeutic composition for treating ulcerations of the gastrointestinal tract comprising a therapeutic concentration of a morphogen or morphogen-stimulating agent in admixture with a biocompatible compound capable of coating the gastrointestinal tract luminal lining.

44. The composition of claim 43 wherein said biocompatible compound comprises a tissue adhesive.

45. The composition of claim 44 wherein said compound comprises hydroxypropylcellulose.

46. A therapeutic composition for treating ulcerations of the gastrointestinal tract comprising a therapeutic concentration of a morphogen or morphogen-stimulating agent in admixture with a biocompatible symptom-alleviating cofactor.

47. The composition of claim 46 wherein said cofactor comprises a biocompatible analgesic, anesthetic, antiseptic, antibiotic, or antiviral or antifungal agent.

48. The composition of claim 46 wherein said cofactor comprises a biocompatible antisecretory agent.

49. A composition useful as part of a cancer therapy comprising a therapeutic concentration of a morphogen or morphogen-stimulating agent in admixture with a cancer cell cytotoxin.

50. An oral rinse for treating oral mucositis comprising a therapeutically effective concentration of a morphogen or morphogen-stimulating agent.

51. A therapeutic composition for treating ulcerations of the gastrointestinal tract comprising a therapeutically effective concentration of a morphogen dispersed in a controlled release delivery vehicle.

52. A therapeutic composition for treating ulcerations of the gastrointestinal tract comprising a therapeutically effective concentration of a morphogen dispersed in a tissue adhesive composition.

53. The composition of claim 46, 49, 50, 51 or 52 where said morphogen comprises an amino acid sequence sharing at least 70% homology with one of the sequences selected from the group consisting of: OP-1, OP-2, CBMP2, BMP3(fx), BMP5(fx), BMP6(fx), Vg1(fx), Vgr(fx), DPP(fx), GDF-1(fx) and 60A(fx).

54. The composition of claim 53, wherein said morphogen comprises an amino acid sequence sharing a last 80% homology with one of the sequences selected from the group consisting of: OP-1, OP-2, CBMP2, BMP3(fx), BMP5(fx), BMP6(fx), Vg1(fx), Vgr(fx), DPP(fx), GDF-1(fx) and 60A(fx).

55. The composition of claim 46, 49, 50, 51 or 52 wherein said morphogen comprises an amino acid sequence having greater than 60% amino acid identity with the sequence defined by residues 43-139 of Seq. ID No. 5 (hOP1).

56. The composition of claim 55, wherein said morphogen comprises an amino acid sequence having greater than 65% amino acid identity with the sequence defined by residues 43-139 of Seq. ID No. 5 (hOP1).

57. The composition of claim 56, wherein said morphogen comprises an amino acid sequence defined by residues 43-139 of Seq. ID No. 5 (hOP1), including allelic and species variants thereof.

58. The composition of claim 46, 49, 50, 51 or 52 wherein said morphogen comprises an amino acid sequence defined by Generic Sequences 1, 2, 3, 4, 5 or 6 (Seq. ID Nos. 1, 2, 3, 4, 30 or 31).

59. The composition of claim 46, 49, 50, 51 or 52 wherein said morphogen comprises an amino acid sequence defined by OPX (Seq. ID No. 29).

60. The composition of claims 46, 49, 50, 51 or 52 wherein the morphogen species provided comprises the pro form.

61. The composition of claim 57 wherein the morphogen species provided comprises the pro domain.

62. The composition of claim 61 wherein said morphogen comprises an amino acid sequence defined by residues 30-431 of Seq. ID No. 16 (hOP-1), including allelic and species variants thereof.

63. The method of claims 1, 12, 17 or 27 wherein said morphogen species provided comprises the pro form.

64. The method of claim 39 wherein said morphogen species provided comprises the pro form.

65. The method of claim 64 wherein said morphogen comprises an amino acid sequence defined by residues 30-431 of Seq. ID No. 16 (hOP-1), including allelic and species variants thereof.